

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) 17 MAR 2006	
FOR FURTHER ACTION See paragraph 2 below	
Applicant's or agent's file reference DRE-0167	International application No. PCT/US04/43620
International filing date (day/month/year) 29 December 2004 (29.12.2004)	Priority date (day/month/year) 30 December 2003 (30.12.2003)
International Patent Classification (IPC) or both national classification and IPC IPC: G03F 9/00(2006.01);G01C 5/00(2006.01) USPC: 430/5,311	
Applicant DREXEL UNIVERSITY	

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

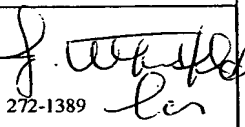

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion	Authorized officer Stephen Rosasco  Telephone No. 571 272-1389 
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/43620

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☐ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
- ☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
- ☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US04/43620

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-8</u>	NO
Inventive step (IS)	Claims <u>1-4 and 8</u>	YES
	Claims <u>5-7</u>	NO
Industrial applicability (IA)	Claims <u>1-8</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-8 lack novelty under PCT Article 33(2) as being anticipated by Chen et al. (2004/0150865).

Chen et al. teach the claimed invention including a method of fabricating a programmable mask, wherein the mask comprises a plurality of optical modulators arranged in an array, said plurality of optical modulators each including at least one nano-particle; and a control arrangement operatively coupled to said optical modulators, said control arrangement applying a stimulus to said nano-particles to thereby cause said nano-particles to change optical properties.

Claims 5-7 lack an inventive step under PCT Article 33(3) as being obvious over Chen et al. (2004/0150865).

Chen et al. teach the claimed invention including a method of fabricating a programmable mask, wherein the mask comprises a plurality of optical modulators arranged in an array, said plurality of optical modulators each including at least one nano-particle; and a control arrangement operatively coupled to said optical modulators, said control arrangement applying a stimulus to said nano-particles to thereby cause said nano-particles to change optical properties.

Chen et al. does not teach that the use of magnetic bits embedded in the substrate as recited in claims 5-7.

However, the use of magnetic particles on the surface or embedded within the surface would be considered obvious variations of the same technique.

Claims 1-8 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.